

**OPERATIONAL PLAN
FOR THE
ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE
SANITARY LANDFILL**

REVISION 2

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**Rocky Flats Environmental Technology Site
P. O. Box 928
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EXECUTIVE SUMMARY

This Operational Plan is submitted to provide direction for the daily operation of the Rocky Flats Environmental Technology Site (RFETS) Sanitary Landfill. This Operational Plan will be used throughout the balance of designed space remaining in the landfill. The future plans for the landfill include groundwater monitoring, management of leachate and closure planning. During the transition from operations, closure planning will include grading, erosion control, seeding, security, inspection, and general maintenance care for the landfill.

The present landfill began operating in 1968, for disposal of RFETS solid waste and was permitted as a solid-waste disposal facility. Records prior to 1986 indicate the landfill accepted hazardous waste for disposal and the landfill was, therefore, reclassified as a RCRA-Regulated Unit. This action did not allow authorized disposal of hazardous waste but only reclassified the landfill for its future remediation and closure. The present landfill continues to accept solid sanitary waste and operates per the most current Landfill Operational Plan (October 26, 1993). In addition to this Plan, agreements are made as needed for other work at the RFETS OU7/Landfill Site.

The sanitary landfill routinely accepts non-hazardous and non-radioactive, garbage, refuse and other solid waste material including industrial type wastes. The Site sanitary landfill does not accept for disposal offsite commercial, agricultural, community or municipal type waste.

This Operational Plan is submitted to fulfill applicable requirements of:

External Regulatory Requirements

- ◆ Colorado Code of Regulations 6 1007-2
- ◆ Colorado Code of Regulations 6 1007-3
- ◆ Code of Federal Regulations 40 Part 258
- ◆ Code of Federal Regulations 40 Part 257
- Code of Federal Regulations 40 Part 243

- ◆ Code of Federal Regulations 40 Part 241
- ◆ Code of Federal Regulations 40 Part 300
- ◆ Code of Federal Regulations 29 Part 1910
- Relevant DOE Orders

Internal RFETS Documents

- ◆ Health and Safety Practices Section, 1-P73-HSP-18.10
- ◆ Health and Safety Practices Section, 7.0
- ◆ Health and Safety Practices Section, 8.0
- ◆ Sanitary Waste Management, 1-115-SAN-001
- ◆ Sanitary Waste Handling Requirements, 1-20000-SAN-001
- ◆ Sanitary Waste Inspection, 5-22421-BZL, WO-9002

The above noted documents provide direction for the daily operations of the RFETS Sanitary Waste Landfill to ensure that the facility is operated safely, efficiently, and in accordance with regulatory guidelines within its current design for use.

I. INTRODUCTION

This Operational Plan is to be used for the continued operation of the RFETS Sanitary Landfill. It delineates both planned and ongoing activities, and will provide the necessary documentation for continued operation of the RFETS sanitary landfill. The current RFETS sanitary landfill has been identified as a site that will require cleanup pursuant to the Rocky Flats Cleanup Agreement (RFCA) due to the presence of Resource Conservation and Recovery Act (RCRA) hazardous substances that have been placed in the landfill in the past. With this in mind, this Operational Plan is not to be construed as a means of cleaning up the landfill and will not act as a closure plan. The purpose of this Plan is to conduct future solid waste disposal operations at this location within applicable requirements for solid waste disposal sites. Included in this Plan is the request for continued disposal of approved routine waste and special wastes. When approved, this Operational Plan will supersede the previous Operational Plan dated October 26, 1993.

Kaiser-Hill is the integrating contractor for the U. S. Department of Energy and is responsible for overall operations at RFETS. RMRS is a second tier subcontractor for Kaiser-Hill and is responsible for waste management, environmental restoration, and decontamination services. The landfill is operated under the Waste Disposal Division within Rocky Mountain Remediation Services (RMRS). A program administrator is responsible for the operations, compliance, resolution of issues and implementation of this Plan, along with other plans and procedures necessary to assure compliance with regulations, orders and directives. This administrator, along with supporting organizations, has the responsibility to take corrective actions in the event of noncompliance.

A. LEGAL/HISTORIC DESCRIPTION

The RFETS is located in northern Jefferson County, Colorado, approximately 16 miles northwest of Denver, and comprises approximately 6,550 acres of

land in Sections 1 through 4, and 9 through 15 of Township 2 South, Range 70 West, 6th Principal Meridian.

The RFETS landfill is located on approximately 20 acres, north of the RFETS complex, within the RFETS Buffer Zone. The landfill is part of Operable Unit (OU) 7, which is located north of the industrial area on the western end of No Name Gulch and encompasses approximately 44 acres. The RFETS landfill has been in operation since 1968. The present sanitary landfill is operated under the authority of the Colorado Department of Public Health and Environment (CDPHE) Hazardous Materials and Waste Management Division.

The landfill waste material is generally thinnest along the boundaries and thickest along the east-west axis. The thickness of waste material prior to the mounding (refer to Attachment 1) ranges from less than 1 foot to approximately 40 feet near the east face of the landfill, which coincides with the deepest portion of the original drainage. It is estimated that the landfill's waste capacity including the mounding is equal to approximately 571,000 cubic yards.

The mounding area, designated by grids 1 through 21, sits on top of an older waste collection area filled prior to 1993. Cell grids 8 through 21 were filled with waste from 1993 through 1997. In February of 1997 work began in cell grid number 7 moving to the west towards cell number 1.

Waste material has not been placed beyond the clay barrier in the groundwater-intercept system or the slurry walls. (For more information on the landfill history, refer to the Draft, Phase 1, Interim Measure/Interim Remedial Action (IM/IRA) Decision Document for Operable Unit 7 Present Landfill.)

II. FACILITY DESIGN

The Engineering Operational Plan for the RFP Landfill (Authorization Number 422215), reviews the recommended Civil Engineering recommendations for the Landfill Facility. This Plan was completed and approved prior to the mounding of waste beginning in 1993. The Plan reviewed the current design, mounding plan, and needed improvements. Improvements included drainage, fill planning, documentation of waste collection area by grid, cover requirements and final contour map. The Plan did not discuss closure planning. This Operations Plan includes elements of the Engineering Plan.

The sanitary landfill is located west of Jefferson County Airport by greater than the required 5 miles. The RFETS landfill has very few bird and rodent problems due to the following:

- Small amounts of putrescible waste
- Size of working face
- Food waste recycling

A. SITE CAPACITY AND LIFE EXPECTANCY

The existing RFETS Landfill is scheduled to continue accepting solid waste until capacity is reached. Based on current volume flow and methods of operation, the present landfill has physical capacity to accept waste through 1997 and depending on future management of sanitary waste it will be available to accept limited amounts of waste until closure. Remaining capacity of the landfill may be utilized to accept construction and D&D debris, waste soils, dried water treatment plant sludge and industrial waste which will expedite final grade for future closure actions. After the completion of the mounding and graded areas of the landfill site, stockpiled soils may be collected for closure use. This clean fill will be managed on the landfill site and will be used for areas requiring fill due to settling and closure planning.

During the twelve months from August 1995 to August 1996 the landfill received approximately 12,720 uncompacted cubic yards of waste for a monthly average of 1060 cubic yards. At that time (8-96) a remaining capacity of approximately 14,135 cubic yards of compacted waste existed. This number is approximately 70% of the identified remaining air space capacity. The 30% balance is soil used for daily and intermediate cover.

B. COVER SOIL REQUIREMENTS

The requirements for soil cover as stipulated in 6 CCR 1007-2 will be followed. Daily cover will be placed at the end of each operating day or when conditions necessitate the cessation of operations. Daily cover consists of a minimum six-inch layer of soil being placed over the waste to prevent or minimize the creation of nuisance conditions. Intermediate cover will be used in areas that are to be left temporarily unused for a period of one month or more, but are not set for final closure. Intermediate cover is defined as a 12-inch layer of soil or other suitable material.

A small stockpile of construction debris (i.e. concrete, gravel, cinder block, and asphalt) may be collected and stockpiled near the working face to aid efficient application of daily cover. An example of this use would be to hold down waste materials which are difficult to cover such as D&D steel siding attached to lumber or large bulky items. Other uses for this debris could include fill for areas of settling, erosion control and final contour to control run on and run-off, and to aid in future closure plans on and around the landfill. The debris once used will be covered by intermediate cover.

Excavation of daily and intermediate cover may be done within the working cells awaiting acceptance of waste. This will help in utilization of all available

landfill space, and will primarily be accomplished by daily grading in areas being worked that day or in preparation of waste to be received the next working day. No waste will be uncovered as part of this work. Daily and intermediate cover will be applied at the end of each working day.

Daily cover and intermediate soil will be supplied to RFETS from the following sources:

- Purchased soil from off-site vendors
- RFETS construction, grading and excavation activities
- Soil moved from RFETS stockpiles to landfill location
- Approved Investigative Derived Material (IDM) material/soil

All daily and intermediate cover materials are soil and soil like materials, and meet the requirements for daily cover as it applies to prevention of nuisance conditions. It is not intended for materials like asphalt, block material or debris to be a final cover. This material is primarily used to aid in daily cover.

A stockpile is maintained to ensure that sufficient cover is available as circumstances dictate.

C. DRAINAGE

Proper drainage is ensured by maintaining an approximate 6% slope on the face of the landfill. Regrading of the entire landfill area has been carried out to correct existing drainage problems and minimize the formation of leachate. There is an existing drainage ditch located around the perimeter of the RFETS landfill that is designed and maintained to keep surface water run-on from the active portion of the landfill. This ditch collects run-on and directs it around the periphery of the landfill. With operations ending at the east mounding area, a depression east

of grid number twenty-one will be filled with construction debris and soil as necessary to maintain proper drainage.

The area filled since September, 1992 has been graded to the base line recommended by RFETS Civil Engineering (refer to RFETS Authorization Number 422215). A twelve inch "intermediate" cover of clay and graded material has been placed on those areas of the landfill that are not in active use. This area will be graded and filled as needed to assure proper drainage and control of run-on and run-off. As stated in this Plan, depressions and areas of settling will be filled and properly covered with soil.

D. EROSION CONTROL

Erosion will be controlled through the maintenance of proper slope. A maximum slope of 6% is planned for the landfill. The operating face of the landfill will be maintained by the heavy equipment operators to ensure that the slope does not exceed 6% and by compacting the cover material to create a surface that sheds precipitation without allowing erosion channels to be created. The landfill surface has been seeded to accelerate growth of vegetation which mitigates erosion.

The east face of the landfill has been graded. The grade of this face is in excess of 6%, but is the minimum possible slope based on the engineering plan and the landfill's mounding design. Seeding, grading, and control of surface waters in this area will help control erosion.

In addition to the erosion control measures previously discussed, periodic inspections will be performed to ensure timely resolution should erosion take place. Signs of erosion that will be looked for are: cracking soil, build-up of sediment in drainages, and the formation of drainage channels on the face of the landfill.

E. LEACHATE MANAGEMENT

Maintaining a small a working face and instituting the additional measures discussed earlier for erosion and drainage control should help minimize leachate formation. Colorado climate is not conducive to the formation of large amounts of leachate from a landfill. The average annual evaporation rate exceeds the average annual precipitation rate by a factor of 3:1. A seep collection and treatment system (Granular Activated Carbon (GAC) with bag filter) has been installed under the direction of Operable Unit (OU) #7 Environmental Operations to monitor seep and leachate from the landfill on a quarterly basis. The system is inspected on a daily basis.

F. CLIMATOLOGY

RFETS climate is typical of the Rocky Mountain region. The annual precipitation is approximately 15.16 inches. Approximately 40 percent of the precipitation falls during the spring season, much of it as snow. Thunderstorms from June to August account for an additional 30 percent. Autumn and winter are drier accounting for 11 to 19 percent of the annual precipitation. Snowfall averages 85 inches per year, generally between October and May.

Winds at the RFETS although variable, are predominantly from the west-northwest. Stronger winds occur during the winter.

Temperatures at the RFETS are moderate. On an average summer day temperatures range from 55 to 85 degrees Fahrenheit (F), winter temperatures range from 20 to 45 degrees F. The daily average maximum temperature is 76 degrees F. Average relative humidity is 46 percent.

G. WETLANDS/FLOODPLAINS and POND OPERATIONS

A variety of wetlands occur at the RFETS, primarily ponds and riparian areas along streams. Common vegetation species include sandbar willow, broadleaf cattail, Baltic rush, Nebraska sedge, cordgrass, cottonwood, and bulrushes. No wetlands have been identified on the landfill site although there is a pond (landfill pond) just east of the landfill's operational areas.

The Rocky Flats Site Drainage and Flood Control Master Plan (April 1992) is a comprehensive analysis of the flood hydrology from the western edge of the RFETS to Indiana Street, which includes the drainage basins of Great Western Reservoir and Standley Lake. The Plan is designated as a hydrologic reference for work at the RFETS, and includes review letters issued by the Urban Drainage and Flood Control District and the Colorado Water Conservation Board which indicate acceptance of the rainfall, hydrology and runoff parameters. The Plan addresses the topography, hydrology, soils, and geology of the drainage basins within the study area. The study area includes the Landfill and surrounding areas of the RFETS.

A narrow floodplain has been designated by the Federal Emergency Management Agency (FEMA) for Woman Creek up to the eastern RFETS. An extrapolated 10-year floodplain is shown upstream from that point to a branch in the creek. Narrow floodplains may be present along or immediately adjacent to other major intermittent creek drainages. The landfill site is not impacted by these floodplains.

The landfill pond has a capacity of 7.52 million gallons (23.09 acre feet). The pond releases water when necessary to stay within the designed capacity. Water is released and managed under the Pond Operations Plan, RF/ER-96-0014.UN, (September, 1996). The Plan's modifications discuss the ecological benefits, increased stormwater detention capacity, dam safety enhancements, and more efficient use of RFETS funds while maintaining water quality.

Topics within the Plan include: site hydrology; spill response programs; contaminated run-off source areas and remediation operations; an analysis of the capacity of the ponds to remove radionuclides through settling; operation guidelines for the proposed operation modes based on the analyses; and a description of pond monitoring necessary for each operation phase.

The landfill's pond and dam were designed to collect the run-off from the landfill and its surrounding area. The Storm/Run-off Quantity for Various Design Events, RF Plant Site, (1-91), describes the precipitation event for a 25 year/24 hour event for the landfill pond. The landfill pond's water level is maintained so that major historical storm events will not exceed the pond's designed capacity. The pond's water level is routinely reviewed.

Additional information on the landfill's drainage and flood controls is outlined in the above noted documents and in the RF Plant Drainage and Flood Control Master Plan, April 1992. These documents include engineered drawings and supporting calculations for surface water control structures at the RFETS.

H. FACILITY INSPECTIONS

Each operational day the landfill will be inspected utilizing Attachment 7, Solid Waste Landfill and Facility Inspection Checklist. This Checklist also prompts required weekly, monthly and quarterly actions, and is completed by designated landfill personnel, management, or supporting personnel. Landfill Operations Personnel along with supporting organizations will be required to act on items requiring attention. Completed inspection records and checklists will be maintained in the landfill operating record files.

III. WASTE ACCEPTANCE

A. DESIGNATED WASTE FOR THE RFETS SANITARY LANDFILL

The landfill accepts only sanitary waste generated by the RFETS. No disposal of liquid wastes, untreated infectious wastes, radioactively contaminated wastes, RCRA regulated hazardous wastes, or friable asbestos are allowed at the RFETS Landfill. Listed below are wastes which may be disposed of into the landfill. A summary of radiological determinations and special wastes are provided in this section.

Waste designated for disposal in the RFETS Landfill may include:

- General office trash
- Empty containers
- Packaging materials
- Cafeteria waste
- Construction debris
- Decontamination and Decommissioning (D&D) debris
- Uncontaminated soils (may be used as cover material)
- Non-friable asbestos containing materials
- Investigative derived material (IDM)(Non-Hazardous/Non-Radioactive)
- Investigative derived material from the present landfill (OU7) (Soil characterization varies within this OU)
- GAC derived waste from OU7 seep treatment (carbon, filters, etc.)
- Potable water plant sludges with Naturally Occurring Radioactive Material (NORM) concentrations <40 picocuries per gram of dry sludge, no free liquids, and/or a pH > 6.0
- Cooling water tower sediment (non-RCRA)

- Other miscellaneous non-RCRA regulated dry sludges and sediments
- Non-RCRA regulated spill and cleanup materials
- Treated medical/infectious wastes
- Excess chemicals (non-RCRA regulated with NFPA ratings < 2)

B. NON-RADIOACTIVE WASTE ACCEPTANCE CRITERIA

RFETS Method for Non-Radioactive Waste Acceptance

The RFETS Health and Safety Practices Manual, Section 18.10, Radioactive Material Transfer and Unrestricted Release of Property and Waste (1-P73-HSP-18.10) outlines the requirements for radiological reviews of waste as developed by the No-Radioactive-Materials-Added Program (NRA). The purpose of this document is to provide responsibilities, requirements, and instructions regarding radioactive material transfer or unrestricted release of property and waste established by the U.S. Environmental Protection Agency, U.S. Department of Energy, Nuclear Regulatory Commission, and the Rocky Flats Environmental Technology Site.

C. SPECIAL WASTES

Investigation Derived Material and Granular Activated Carbon

Investigation Derived Material (IDM) contains soil and sediment generated during environmental investigations at the RFETS. This waste material has been generated from designated areas (identified as Operable Units) throughout the RFETS. Representative soils and sediments are collected, analyzed, and characterized for constituents specified in approved project-specific work plans to determine how the materials will be handled. IDM waste has been

characterized into two primary categories, non-radioactive and radioactive, with subcategories of containers containing CERCLA and RCRA constituents of concern.

The current backlog of IDM waste is approximately 800 cubic yards. IDM will continue to be generated from RFETS OU's, however the volume will decline. This material will be managed along with all other IDM categories per agreements with CDPHE, which includes Disposition of Soil and Sediment Investigation-Derived Materials, (4-H46-ENV-OPS-FO.29). This procedure provides a method for classifying the soil and sediment investigation-derived material generated from environmental investigations. Specifically, this procedure is used to determine a risk-based disposition of soil and sediment.

As part of remediation of OU7, waste streams generated include IDM from the identified OU7/Landfill areas, and carbon/filter materials and sediment from the Granular Activated Carbon Unit installed at the landfill collection pond within OU7/Landfill. Refer to Attachment 3 (CDPHE/DOE letters) for return of this material into the landfill. This material may include IDM which may contain RCRA, CERCLA, and radioactive constituents of concern. This is the only waste which may contain RCRA, CERCLA, and radioactive constituents of concern allowed for disposal back into the landfill where it was derived.

Characterization will vary, and Site Environmental Restorations Groups will be responsible for providing necessary documentation for this waste prior to acceptance in the landfill, which will then be managed along with other RFETS waste into the current working face.

Characterization of the OU7/Landfill has been completed and no additional sampling is planned at this time

Potable Water Plant Sludges

The RFETS water treatment plant (Building 124) generates a sludge from drying beds that contain trace amounts of NORM. This sludge is similar to sludges generated from municipal water treatment plants located in the Front Range using mountain reservoirs as feedwater. An agreement was made in the past to accept this material for disposal (refer to DynCorp of Colorado, Inc., 95-RF-06439, letter to E. Kray, CDPHE, regarding characterization of this sludge). The sludge contains radionuclides that are consistent NORM however, due to the concentration of sludge collected in previous years the sludge is greater than the 6CCR-1007-2, Section 12, limits of less than 40 picocuries per gram (pCi/g). Samples taken in July 1995 showed an average total alpha activity of 49 pCi/g, with a range of 42 to 63 pCi/g. RFETS expects that the sludge, when disposed of on a routine basis will fall below an average of the allowed less than 40pCi/g of dry sludge with no free liquids (as determined by EPA SW-846 "Paint Filter Liquids Test"), and a pH > 6.0.

Should the average be greater than the 40 pCi/g, contact will be made with CDPHE for approval prior to disposal.

Non-Friable Asbestos

Only non-friable asbestos will be allowed for disposal into the landfill. All activities involved in the disposal of non-friable asbestos waste, including placement in the landfill, covering the waste, and compacting the fill will be done so as to prevent the rupture or opening of the bags holding the waste and to prevent the emission of asbestos to the air. All asbestos waste at the landfill face will be covered immediately (approximately 1 hour) with a minimum of six inches of cover materials. Disposal locations will be tracked in operational logs maintained by Landfill Operations Personnel.

The landfill Waste Technician will inspect all incoming non-friable asbestos waste loads and will not accept any that are not properly labeled or packaged. All asbestos will be double-bagged and sealed in 6-mil plastic bags with asbestos labels on the outer surface.

Treated Medial/Infectious Waste

As part of RFETS operations, a small amount of infectious waste is generated by Occupational Medicine and Health Effects Departments. Prior to disposal into the RFETS landfill, all infectious waste is properly treated and rendered non-infectious per 6CCR 1007-2 and Colorado Revised Statutes Title 25, Article 15, 401 (Colorado Medical Waste Tracking Act). The EPA guide for Management of Infectious Waste was used to develop Plans for RFETS use in the management of infectious/medical waste. No untreated infectious waste will be disposed of in the sanitary landfill.

D. WASTE MINIMIZATION

Limited recycling of aluminum and other metals, cardboard, white paper, and food waste from cafeterias takes place prior to depositing trash into the dumpsters at RFETS. These materials are sent offsite for processing and reuse. There are also a number of efforts underway to reduce the amount of waste at the source and to expand our recycling programs where practical.

At the discretion of management within Waste Minimization and Waste Disposal Organizations, materials which cannot easily or economically be recycled may be disposed of into the sanitary landfill. Efforts will be made to recycle where possible or practical.

IV. OPERATING PROCEDURE

A. SITE ACCESS AND TRAFFIC

The RFETS landfill is accessed via the north perimeter road that intersects with the west access road on the south side of the 130 trailer complex. The road is paved with the exception of the last mile to the landfill which is an improved gravel road. All traffic using this road is internal to the RFETS. There is a four foot wire fence that encircles the landfill site. The landfill itself is accessed through one of two gates, one on the south and one on the north side of the landfill. All gates are locked when the landfill is unattended. The landfill is accessed by RFETS environmental groups as needed in order to inspect and manage the OU #7 GAC unit which filters the seep and leachate from the landfill site. To expedite closure, the landfill will be visited by RFETS support organizations as needed.

B. FILLING PROCEDURE/SCHEDULE

| <u>FILL AREA</u> | <u>VOLUME (1)</u> <u>(CU. YDS.)</u> | <u>ELEVATION</u> <u>CHANGE (AT CENTER)</u> |
|---------------------------|--|---|
| 1 | 385 | 3' |
| 2 | 1180 | 6' |
| 3 | 1836 | 7' |
| 4 | 2370 | 8' |
| 5 | 3149 | 9' |
| 6 | 4149 | 11' |
| 7 (started 2-97) | 5057 | 12' |
| 8 (initial starting grid) | 5728 | 12.5' |
| 9 | 6300 | 14' |
| 10 | 6834 | 15.5' |
| 11 | 7288 | 15' |
| 12 | 7524 | 15' |
| 13 | 7876 | 15.5' |
| 14 | 8089 | 16' |
| 15 | 8208 | 16' |
| 16 | 8400 | 16' |
| 17 | 7995 | 16' |
| 18 | 6406 | 14' |
| 19 | 4077 | 10' |
| 20 | 1491 | 5' |
| 21 | 612 | 2.5' |

(1) Total volume (approximately 105,000 cubic yards) includes compacted solid waste & daily/intermediate cover materials. A high percent (up to 30%) of this volume is soil utilized for daily and intermediate cover.

The Landfill Engineering Plan (refer to RFETS Authorization Number 422215) has designated landfill grids based on an alpha-numeric format, (refer to Attachment 1, Map of Engineering Operational Plan for RFETS Landfill). Each fill section will bring the ground level to its final elevation as established by the Engineering Plan. This will involve a vertical change in the existing elevation ranging from 2.5 to 16 feet as shown on the previous table. All areas not scheduled to be worked for a period of one month or more will be covered with a minimum 12 inches of intermediate cover. RFETS Civil Engineering will stake the centerline and grid rows of the landfill on an as-needed basis to ensure adherence to the Operational Plan and to verify the proper fill areas. Refer to Attachment 1, Map of Engineering Operational Plan for RFETS Landfill - Survey Closure Grid. Every effort will be made to maintain the landfill's planned slope/grade while maintaining proper site drainage.

Prior to the introduction of new solid waste into the working face, the cover of the previous day will be scraped down to the top of the deposited waste. This will allow for the recovery of the previous day's cover, but will not disturb the emplaced trash. Solid waste will then be placed on the working face and the scraped material will be used for daily cover at the end of the working day. This practice will only be used in a manner as to prevent nuisance conditions.

C. NUISANCE CONTROL

A minimum of six inches of soil cover will be placed on top of the waste each working day following operations or shutdown to minimize any wind blown debris. This will assist in the maintenance of a low fire danger, will minimize available shelter for small rodents, and provide a more aesthetic appearance for the landfill. A soil berm and the new mound created by filling grid sections will provide protection from the strong winds that are prevalent in this area. In addition, the limited "working face" of approximately 50 feet by 50 feet will be maintained to limit the amount of waste available to create a nuisance

condition. Personnel are assigned daily to pick up exposed trash within the landfill and along the perimeter fence.

A total curtailment of operations at the RFETS Landfill will occur when sustained winds reach 40 mph (or as deemed appropriate by Landfill Operations personnel), a tornado warning is in effect for the facility, heavy/continuous snow or rain occurs, a lightning storm is occurring, or an emergency condition that could affect the area exists. Disease and nuisance vectors will be controlled through the use of daily cover which will minimize the amount of available food and shelter. Daily cover will also be used as a means of controlling odors which may emanate from the working face.

D. FIRE, SAFETY AND HEALTH

Burning of waste at the RFETS Landfill is prohibited. Smoking is prohibited in the plant buffer zone. In the event that a fire does occur, cover material will remain available on the side of the working face to assist with fire suppression. All heavy equipment used at the RFETS Landfill is equipped with fire extinguishers for the control of small fires. The RFETS Fire Department is on duty 24 hours a day and if a fire were to occur at the landfill, Fire Department Personnel would be notified, respond to the call, and remain on standby until the fire is extinguished. The Fire Department will not use water on any landfill fire if possible. Soil or other non-liquid materials will be used to exhaust a fire should one occur. Landfill personnel will inspect fire extinguishers on heavy equipment used at the landfill.

No identified source of water is designated for fire suppression, control of nuisance conditions, construction or for personnel use. However, due to the lack of a water supply, water needed for fire suppression could be trucked in by the RFETS Fire Department trucks or pumped from the landfill pond.

Employee training includes basic safety training as well as procedures for notification of RFETS emergency personnel. RFETS has its own security force which provides security for the facility on a 24 hours-a-day basis. RFETS Occupational Health and the RFETS Fire Department provide medical assistance in case of accident or injury. Communications will be carried out through the use of two-way radios which both the heavy equipment operators and Landfill Operations Personnel carry when working at the landfill.

Appropriate signs are posted in and around the landfill boundary fence. Signs include warning signs, asbestos signs, radioactive control signs, and hours of operation signs.

Health and safety practices are outlined in a number of operating procedures and the Site Health and Safety Practices Manual. All work is accomplished through the use of Integrated Work Control Packages which require a safety review prior to start of work.

E. UTILITIES

There are no public utilities at the RFETS Landfill. A portable chemical toilet is provided and staged outside the landfill south gate area for landfill personnel and visitors.

F. SURFACE WATER RUN-ON/RUN-OFF CONTROL

A run-on water control ditch is located around the outside perimeter of the landfill and is graded to drain run-on water to the east past the landfill pond and into the drainage swale below the landfill pond dam. Run-off water is controlled at the landfill working face. The active working face is a depression in the overall surface of the landfill. This working face depression will control and

contain any surface water which falls onto the working face. The size of the working face is minimized, helping minimize the potential for runoff.

G GROUNDWATER MONITORING

A groundwater monitoring program (RFETS Integrated Monitoring Plan (IMP)), has been instituted in accordance with 6 CCR 1007-2, 6 CCR 1007-3, and 40 CFR 265.90(d). The IMP which includes specifications for the installation, quarterly sampling and analysis of upgradient and downgradient wells will be followed for the landfill groundwater monitoring program. RFETS operating procedures will be used for sample collection, preservation, shipment, and chain-of-custody control.

The sanitary landfill groundwater monitoring quality data has identified the following primary upgradient wells (70193, 70393, 70493, and 5887) and four downgradient wells (4087, B206989, 52994, and 52894) which are used for statistical comparisons. Refer to Table 4-1 for a list of all groundwater monitoring wells at or near the present landfill. The locations of these wells are shown on Figure 4-1.

Groundwater samples are analyzed for constituents in the following groups; field parameters, indicators, metals, anions, volatile organic compounds, and radionuclides. The comprehensive results are reported annually in a report submitted to DOE for distribution to CDPHE. A list of the CDPHE/EPA required sampling parameters are presented as Table 1-3. Environmental Restoration communicates all analytical information including changes in levels of contamination to the CDPHE-ER Division contacts.

In past years a number of groundwater wells have been installed into the landfill's waste pile. Refer to Section IV. Operating Procedure, Sub-section H for a description of these wells. The wells were primarily installed to gather

data on the landfill and determine appropriate groundwater and closure actions. It was determined in 1995 that sufficient data has been retrieved from these wells and a plan for closure of the wells has been implemented. This well abandonment program was approved by CDPHE and the EPA. The wells are being closed and removed from service and remaining wells noted in this section will continue to provide data on the landfill/OU7.

For additional information on groundwater monitoring refer to, Groundwater Monitoring at the Present Sanitary Landfill, Rocky Flats Environmental Technology Site, RF/ER-96-0032.UN (June 17, 1996). This report outlines agreed upon monitoring activities for the present landfill by CDPHE/EPA Divisions:

H. EXPLOSIVE GAS MONITORING

There are five (5) methane gas "vent" wells currently in place at the landfill.

These wells reduce sub-surface gas pressure, which in turn reduces horizontal methane gas migration to the landfill boundary.

Monitoring of methane gas is performed at four ground water wells in the landfill area (6287, 6687, 71693, and B106089). This monitoring is done in conjunction with the routine gas monitoring of wells specially constructed for methane monitoring. Wells were selected on the basis of their proximity to the landfill materials, and on having screened intervals within landfill materials above the water table. Data on the methane and groundwater wells can be found in the annual groundwater report prepared by the Geosciences Group in Environmental Restoration.

Pursuant to Section 2.3 of 6 CCR 1007-2, monitoring for methane must be done at a minimum on a quarterly basis. Since the landfill at RFETS has no buildings, and the closest buildings are on the opposite side of a deep ravine

approximately one-quarter mile from the landfill, quarterly monitoring is sufficient for the RFETS landfill.

On a quarterly basis, Landfill Operations monitors for methane gas at nine designated perimeter locations around the landfill and at the five methane gas "vent" wells (Refer to Attachment 5, Explosive Gas Monitoring Map). The

locations noted in Attachment 5 are areas designated for surface monitoring. In order to assure collection of quality data, specific locations were established as identified in Attachment 5. None of these locations are constructed monitoring points. Surface monitoring will be done by trained RFETS Industrial Hygiene personnel, Groundwater Monitoring personnel, or by landfill personnel who will be trained by Industrial Hygiene to do the monitoring. Methane monitoring shall be completed following the outline as described in the Explosive Gas Monitoring Survey Sheet, Attachment 6, and the methane monitor manufacturer's requirements for use. If methane gas is detected during quarterly monitoring, the location will be marked, and the landfill manager notified. The marked location will be closely monitored during future surveys. During the monitoring survey, the monitor will watch for dying vegetation which may indicate that gas is migrating to the area. If methane is detected at a level of concern, Industrial Hygiene, Environmental Restoration, Groundwater Monitoring Group and Operations will be notified. Appropriate actions will be taken should methane gases become an issue. Methane gas is normally generated by solid sanitary waste landfills and high methane generation is more common in large municipal landfills. The Site landfill is not a high methane generator due to the types of industrial wastes managed. All monitoring results will be recorded on the Explosive Gas Monitoring Survey Sheet, Attachment 6, and the findings will be kept permanently by the landfill manager in the landfill operating records.

V. FACILITY MANAGEMENT

A. OPERATING SCHEDULE

Hours of operation for the RFETS Landfill are between 7:00 A.M. to 4:30 P.M. on all normal working days. All wastes which require cover will be taken before 3:00 P.M. Construction materials will continue to be accepted after 3:00 P.M. since they do not normally require daily cover. This schedule could be changed as required by the demands of RFETS operations. Should a holiday or site shutdown occur on any of the operating days, the RFETS Landfill will be closed. Special conditions may necessitate the operation of the landfill on what would normally be closed days. Circumstances which could require this additional activity may include ongoing construction projects, high winds or other inclement weather conditions on days of normal operation, and support for the RFETS cleanup efforts as part of the new RFETS mission.

B. PERSONNEL AND EQUIPMENT

The following will be assigned to/or support part time the RFETS Landfill:
Personnel will vary depending on needs.

Personnel: 1 Landfill/Solid Sanitary Waste Program Lead
 1 Waste Services/Landfill Supervisor
 1 Waste Technician
 1 Heavy Equipment Operator
 1 Radiological Control Technician (RCT)
 1 Facilities Support Specialist
 1 Regulatory and Program Specialist
 1 Truck Driver (waste collection)

Equipment: 1 IT 28 Cat
2 Bulldozers
Other special need equipment is available from the RFETS
Site Services

Facilities: 1 Chemical Treatment Toilet

C. WASTE INSPECTION AND RECORDKEEPING

Waste inspection and recordkeeping will be conducted by trained Waste Technicians and RFETS Landfill support personnel. The waste technicians, truck drivers, heavy equipment operators, and Landfill Operations personnel are trained on what is acceptable for disposal at the RFETS Landfill and what is restricted from disposal. All have the authority to reject any loads that contain hazardous, prohibited items, or questionable items.

Generators have been notified of the restricted items that cannot be placed in the RFETS Landfill. Wastes are screened for radioactive contamination on a routine basis from radiological areas. Radiological Control Technicians (RCT's) perform radiation surveys using a Field Instrument for the Detection of Low Energy Radiation (FIDLER) or equivalent survey instrumentation. This survey of the waste occurs after it has been disposed of at the landfill and spread in the working face, but prior to the waste being covered with daily cover. The survey information is then entered on a Landfill Operating Log sheet. If, during the course of the multiple checks detailed above, any restricted item other than potentially radioactive material is found, the item is removed and separated from the load. The generator is then contacted to retrieve the item and dispose of it in accordance with established waste handling procedures. If potentially radioactive material is found, Radiological Engineering shall be contacted immediately.

The landfill supervisor will perform a supervisory review of the landfill on a routine basis.

The maintenance of all completed records is the responsibility of landfill management. The landfill operating records are available for review upon request. All landfill records will be retained for 30 years after the closure of the landfill.

The landfill manager or designee will maintain the following sanitary landfill records at RFETS and ensure they are available for regulatory review.

- Sanitary Landfill Operating Log Sheets
- Sanitary Landfill Pick-up Log Sheets
- Nonconformance Log Sheets
- Waste Processing Request/Material Transfer and Disposal/Waste Release Evaluation Forms and Logs for special and non-routine wastes that have been accepted into the landfill
- Water Quality and Methane Gas Monitoring Results
- Daily Operations/Landfill Logs/Supervisor Logs
- Daily, Weekly, Monthly, Quarterly Inspection Checklists
- Quarterly Explosive Gas Surveys
- Training documentation
- Inspection records (inc. daily, weekly, monthly records)
- Explosive gas monitoring results

D. RESPONSIBILITIES

Specific duties for the truck drivers/heavy equipment operators, waste technicians and the RCT's include the following:

Truck Drivers/Heavy Equipment Operators

Complete the Landfill Pick-up Log sheets - include dumpster identification number, dumpster location, date, truck type, approximate volume of waste, restricted items, and driver's name and employee number.

Waste Technicians (Detailed in WO-9002, Landfill Waste Inspection)

Complete the Landfill Operating Log Sheet - include load numbers, date and time the truck entered the landfill, grid coordinates, truck type, volume, log number, weather conditions, heavy equipment operator and employee number, waste technician's name, employee number and signature, and comments.

Visually inspect load during disposal of waste, to determine that no prohibited items including liquids, have been deposited in the landfill. (Ref. Prohibited Items List Attachment 2)

Perform a walk-around inspection of the discharged loads prior to being covered, for verification of waste acceptability. Prohibited items discovered shall be reported to landfill supervision who will contact the generator and have the item picked up for proper disposal.

Perform a walk-around inspection of the landfill area for displaced sanitary waste.

Radiological Control Technician

Perform radiological survey with appropriate calibrated radiological instrumentation on waste collected in the landfill working face. Record readings and employee number on Landfill Operating Log. Control landfill activity until contaminated material is removed, if applicable. Responsible for notification if

potentially radioactive material is found at the landfill or within the sanitary waste collection areas.

VI. CLOSURE AND POST CLOSURE

RFETS Environmental Restoration (ER) Department will take ownership of the present landfill to initiate closure actions once Landfill Operations has completed use of the landfill. Landfill Operations Personnel will verify that intermediate cover has been established over the entire active portion of the landfill prior to turnover to ER. ER will work with the EPA and CDPHE to define the RFCA sanitary landfill closure/environmental remediation process.

ER has initiated closure actions in a Draft Interim Measure/Interim Remedial Action (IM/IRA) Decision Document for Operable Unit 7 Present Landfill, (March 1996). The IM/IRA discusses the elements of a planned closure of OU7. Requirements considered in the IM/IRA are the closure requirements listed in 6 CCR 1007-2. A final document will be completed once negotiations are completed on the IM/IRA draft and RFCA agreements. ER will be responsible for coordination of closure activities with operations once established.

Landfill Operations Personnel will be responsible for the following activities as necessary until closure remediation begins:

- Earthwork and erosion control
- Maintenance of intermediate final cover
- Revegetation and weed control
- Groundwater monitoring
- Methane monitoring
- Recordkeeping
- Inspections
- Security

- Road repairs and grading
- Posting of required signs
- Prevention of nuisance conditions
- Cover of settlement areas
- Support GAC unit for leachate

A. FINANCIAL ASSURANCE PLANNING

The regulatory justification for this determination is found in Section 30-20-104.5, et seq., C.R.S. This citation directs the Colorado State Board of Health to promulgate regulations establishing and implementing financial assurance requirements for the closure and post-closure care of solid waste disposal sites and facilities. The Colorado legislature also directed the Board of Health to adopt regulations that comply with RCRA, Subtitle D regulations. In the event that the State Board of Health imposed financial assurance requirements on the federal government, the Board of Health's regulations would not be in compliance with RCRA regulations.

The regulations in Subtitle D, Subpart G-Financial Assurance Criteria, Section 258.70 applicability and effective date, state:

- (a) *The requirements of this section apply to owners and operators of all MSWLF units, except owners or operators who are State or Federal government entities whose debts and liabilities are the debts and liabilities of a State or the United States.*

Based on this language, no formal action regarding the demonstration of financial assurance is required.

VII. PLANNED FACILITY IMPROVEMENTS

The following improvements are being planned or have been completed for the sanitary landfill:

- Areas within the landfill which require seeding to control erosion will be seeded with native grasses. These grasses may include the following; Western Wheatgrass (Arriba), Blue Grama (Lovington), Sideoats Grama (Vaughn), Little Bluestem, and Green Needlegrass. All of these grasses have been identified for use by the RFETS Environmental Restoration Division.
- A fence which cuts through the west end of the mounding area has been removed in order for that area to be used for waste. This area, grid cells 1-7, can accommodate approximately 18,126 cubic yards of waste, cover soil and intermediate cover. Compacted waste will be approximately 70% of that volume (12,688 cubic yards). This area began accepting waste in February of 1997.
- Methane vent wells are being improved by extending their elevation, replacing signs, and bollards. These actions will protect the operators, equipment, and maintain the integrity of the monitoring systems at the landfill. Flags attached to the wells are being considered to aid in their location. This will be especially important as the landfill prepares for closure where seeded vegetation areas may hide the well head locations.
- A new gate will be installed at the north end of the landfill for use when accepting waste in cells 1-7. The gate will have hours of operation, contacts and phone numbers noted on a sign.

- After the relocation of the fences and gates, appropriate signs will be installed and checked periodically around the entire perimeter of the landfill.
- As stated in past operational and engineering plans for the landfill, the east face of the landfill requires continued management due to the areas slope and stability concerns. This area will be monitored and seeded to prevent erosion as needed. In addition, the area above the east slope and east of the mounding (G-21), will be leveled with construction debris and soil, and seeded to control erosion and run-on and run-off. This action will aid in the final grade transition of the mounding as well as the old landfill grade.
- An area within the landfill site may be used as a solid waste staging area. This short term staging area will be used for the collection of solid waste designated for alternative handling prior to final disposal. Waste will be collected in roll-off or similar type containers. This staging area will aid RFETS in the efficient collection, handling, and disposal of solid waste. Disposal alternatives may include shipment of waste offsite. This established area will not be considered or managed as a "Transfer Station", and will only handle waste generated by and at RFETS. If implemented for use this area's use requirements will be included in RFETS procedures.
- Certain ground water monitoring wells within the landfill boundary have been identified for closure. Wells to be closed are wells which are inactive or are not part of the new Ground Water Monitoring Program which was recently approved under RFCA. The Ground Water Monitoring Group will coordinate the closures of these wells with the Landfill Operations Personnel. It is expected that the wells will be closed by Summer 1997.

No additional facility improvements are currently planned for the present landfill at this date.

VIII. IMPLEMENTATION

The RFETS Sanitary Landfill is currently in use, therefore the daily operations will be conducted in accordance with this Operational Plan effective immediately upon approval by CDPHE.



Figure 4-1

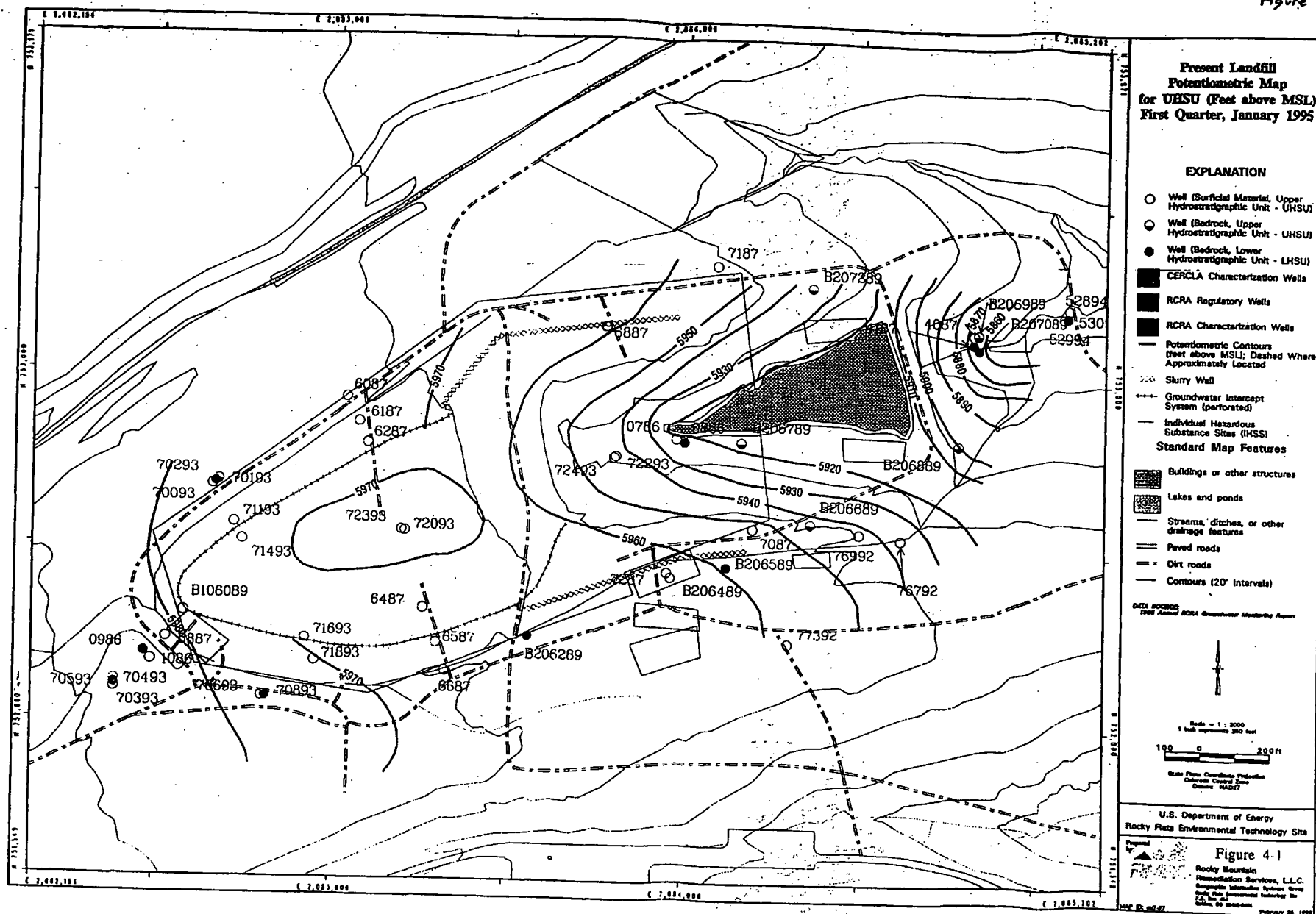


Table 4-1
Active Groundwater Monitoring Wells at or Near the Present Landfill

| <u>Well ID</u> | <u>Screened Unit</u> | <u>Well Classification</u> |
|----------------|----------------------|------------------------------|
| 4087 | A/U | RCRA Regulatory Well |
| 5887 | A/U | RCRA Regulatory Well |
| B206989 | B/U | RCRA Regulatory Well |
| 76992 | A/U | CERCLA Characterization Well |
| 77392 | A/U | CERCLA Characterization Well |
| 70193 | B/U | CERCLA Characterization Well |
| 70393 | A/U | CERCLA Characterization Well |
| 70493 | B/U | CERCLA Characterization Well |
| 52894 | A/U | CERCLA Characterization Well |
| 52994 | B/U | CERCLA Characterization Well |

A/U = alluvium/upper hydrostratigraphic unit

B/U = bedrock/upper hydrostratigraphic unit

For more detail refer to RF/ER-96-0032.UN, Groundwater Monitoring at the Present Sanitary Landfill, Rocky Flats Environmental Technology Site (Final Report, June 17, 1996) Noted in this report is a complete listing of all wells. Some inactive wells are intact, but not currently being sampled. Listed above are the only active wells at or near the Present Landfill.

Table 1-3
Chemical Constituents Monitored in Groundwater During 1993

| FIELD PARAMETERS | |
|----------------------|------------------------------|
| | pH |
| | Specific Conductance |
| | Temperature |
| | Alkalinity |
| INDICATORS | |
| • | Total Organic Carbon (TOC) |
| | Total Dissolved Solids (TDS) |
| • | Total Suspended Solids (TSS) |
| • | pH ¹ |
| METALS | |
| Target Analyte List: | |
| | Aluminum (Al) |
| | Antimony (Sb) |
| | Arsenic (As) |
| | Barium (Ba) |
| | Beryllium (Be) |
| | Cadmium (Cd) |
| | Calcium (Ca) |
| | Chromium (Cr) ² |
| | Cobalt (Co) |
| | Copper (Cu) |
| | Iron (Fe) |
| | Lead (Pb) |
| | Magnesium (Mg) |
| | Manganese (Mn) |
| | Mercury (Hg) |
| | Nickel (Ni) |
| | Potassium (K) |
| | Selenium (Se) |
| | Silver (Ag) |
| | Silicon (Si) |
| | Sodium (Na) |
| | Thallium (Tl) |
| | Vanadium (V) |
| | Zinc (Zn) |
| | Cesium (Cs) |

| METALS CONT | |
|-------------|---------------------------|
| | Lithium (Li) ³ |
| | Molybdenum (Mo) |
| | Strontium (Sr) |
| | Tin (Sn) ¹ |

| ANIONS | |
|--------|---|
| | • Ammonia |
| | • Carbonate (CO ₃ as CaCO ₃) |
| | • Bicarbonate (HCO ₃) |
| | • Chloride (Cl) |
| | Fluoride (F) |
| | Sulfate (SO ₄) |
| | Nitrate/Nitrite (NO ₂ /NO ₃ as N) |
| | • Cyanide (as N) ⁴ |
| | • Orthophosphate |

| VOLATILE ORGANIC COMPOUNDS ² | |
|---|---|
| Target Compound List - Volatiles: | |
| | Chloromethane (CH ₃ CL) |
| | Bromomethane (CH ₃ Br) |
| | Vinyl Chloride (C ₂ H ₃ CL) |
| | Chloroethane (C ₂ H ₅ Cl) |
| | Methylene Chloride (CH ₂ CL ₂) |
| | Acetone |
| | Carbon Disulfide |
| | 1,1-Dichloroethane (1,1-DCA) |
| | 1,1-Dichloroethene (1,1-DCE) |
| | trans-1,2-Dichloroethene |
| | 1,2-Dichloroethene (total) (total 1,2-DCE) |
| | Chloroform (CHCl ₃) |
| | 1,2-Dichloroethane (1,2-DCA) |
| | 2-Butanone (MEK) |
| | 1,1,1-Trichloroethane (1,1,1-TCA) |
| | Carbon Tetrachloride (CCL ₄) |
| | Vinyl Acetate |
| | Bromodichloromethane |
| | 1,1,2,2-Tetrachloroethane |

| VOLATILE ORGANIC COMPOUNDS ⁵ | |
|---|--|
| | 1,2-Dichloropropane (1,2-DCP) |
| | trans-1,3-Dichloropropene |
| | Trichloroethylene (TCE) |
| | Dibromochloromethane |
| | 1,1,2-Trichloroethane |
| | Benzene |
| | cis-1,3-Dichloropropene |
| | Bromoform (CBr ₄) |
| | 2-Hexanone |
| | 4-Methyl-2-pentanone |
| | Tetrachloroethene (PCE) |
| | Toluene (C ₇ H ₈) |
| | Chlorobenzene (C ₆ H ₅ Cl) |
| | Ethyl Benzene |
| | Styrene |
| | Xylenes (Total) |

| RADIONUCLIDES (Dissolved) ⁶ | |
|--|--|
| | • Gross Alpha |
| | • Gross Beta |
| | Uranium 233/234; 235 - total; and Uranium 233, 234, 235, and 238 |
| | Strontium 89+90 ⁷ (Sr-89,90) ⁸ |
| | • Cesium 137 (Cs-137) |
| | • Radium 226; 228 (Ra-226,228) |

| RADIONUCLIDES (Total) | |
|-----------------------|----------------------------------|
| | • Americium 241 (Am-241) |
| | Tritium |
| | • Plutonium 239+240 (Pu-239/240) |

| DIOXINS/FURANS ⁹ | |
|-----------------------------|-------------------------------|
| | • 2,3,7,8-TCDD |
| | • Hexachlorodibenzo-p-dioxin |
| | • Pentachlorodibenzo-p-dioxin |
| | • Hexachlorodibenzofuran |
| | • Pentachlorodibenzofuran |
| | • Tetrachlorodibenzofuran |

• No longer sampled per proposed RFETS Integrated Monitoring Plan (IMP)

- 1 Prior to 1989 not analyzed.
- 2 Analyses in 1990 are for total chromium. Chromium (VI) was analyzed during fourth quarter 1987 only.
- 3 Prior to 1989, lithium was only analyzed during fourth quarter 1987 and first quarter 1988.
- 4 Cyanide was not analyzed during fourth quarter 1987.
- 5 Not analyzed in background samples in 1989.
- 6 Dissolved radionuclides replaced total radionuclides (except tritium) beginning with the third quarter 1987; During 1991 and 1992, total concentrations of Am-241, Pu-239,240, and tritium were analyzed.
- 7 Strontium 89+90 was not analyzed during first quarter 1988.
- 8 Prior to 1989 not analyzed and only analyzed if gross alpha exceeds 5 pCi/l.
- 9 Not analyzed prior to third-quarter, 1994.

PROHIBITED ITEMS LIST

The following listed items are prohibited from being disposed at the Sanitary Landfill based on State of Colorado regulations, RFETS Plans/Procedures and DOE Orders.

- RCRA-regulated hazardous waste which includes the following commonly generated wastes;
 - fluorescent light tubes crushed or otherwise
 - incandescent light bulbs crushed or otherwise
 - lead or materials containing lead
 - spent printed circuit boards
 - batteries
 - Lead-Acid
 - Lithium
 - Mercury
 - Nickel-Cadmium
 - Silver Oxide
- Other regulated waste (i.e. PCB-Contaminated waste >49 ppm, Friable Asbestos)
- Hazardous substances (40 CFR 302, Table 302.4, listing of chemicals) •
 - Some waste authorized for disposal may contain acceptable risk based levels of Hazardous Substances. (e.g. Investigative Derived Material, refer to III.C)
- Sewage sludge from waste water treatment including septic tank pumpings or chemical toilet waste
- Water plant sludges with radioactivity levels >40 picocuries per gram of dry sludge, with free liquids, and/or a pH < 6.0 (CDPHE approval required for >40 picocuries per gram)
- Containerized and uncontainerized free liquids including oil filled transformers
- Unshredded tires
- Metal chips, turnings, ingots, plates, sheets, furniture, equipment, construction materials, drums or other like materials which can be recycled
- Containers greater than 5 gallon, such as drums, buckets, tanks, etc. unless they are crushed, cut or otherwise treated to render the container incapable of collecting liquids.

continued on next page

PROHIBITED ITEMS LIST cont.

- Waste should not contain bulk recyclable materials:
 - Office Paper
 - Aluminum Cans
 - Printer Cartridges
 - Cardboard
 - Scrap Metal
- Radioactively contaminated Personal Protective Equipment (PPE)
- RCRA and/or TSCA contaminated Personal Protective Equipment (PPE)
- Untreated medical/infectious waste
- Pressurized vessels or cylinders
- Unpunctured empty aerosol cans/containers
- Containers displaying: (containers must be cleaned as required and labels removed or defaced)
 - National Fire Protection Association labels
 - On or off-site hazardous waste labels
 - Polychlorinated biphenyls (PCB) labels
 - Radioactive material labels
 - DOT hazard class labels
 - Classified and OpSec-sensitive materials
- Excess chemicals/products/materials not meeting disposal criteria (refer to Attachment 4)
- Classified or sensitive unclassified materials, documents or records
- Original controlled documents or records
- Petroleum or petroleum-based products greater than 10,000 total petroleum hydrocarbons (TPH)
- IDM with RCRA and CERCLA constituents of concern >FO.29 acceptable limits
- Municipal or household waste from employees homes or businesses (i.e. grass clippings, trees, household wastes, chemicals)
- Controlled property (i.e. computers, printers, property labeled with U.S. DOE-Rocky Flats Site Property Control Number, etc.)

Attachment 3



Department of Energy

ROCKY FLATS FIELD OFFICE
P.O. BOX 928
GOLDEN, COLORADO 80402-0928

JUN 25 1997

95-DOE-08198

Mr. Martin Hestmark
U. S. Environmental Protection Agency, Region VIII
ATTN: Rocky Flats Project Manager, 8HWM-RJ
999 18th Street, Suite 500, 8WM-C
Denver, Colorado 80202-2405

Mr. Joe Schieffelin, Unit Leader
Hazardous Waste Facilities
Colorado Department of Public Health and the Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Gentlemen:

Enclosed for your approval is the Department of Energy's (DOE) proposal to return Phase I Field Investigation-Derived Material (IDM) to the present landfill before the cap is put in place. This proposal is consistent with a letter (95-DOE-08227) previously submitted by the Department of Energy (DOE) on March 16, 1995.

During the Operable Unit (OU) No. 7 Phase I Field Investigation, 237 drums of IDM were generated. Of the 237 drums, 64 drums contain RCRA hazardous waste and the remaining 173 drums contain no RCRA hazardous waste.

The DOE proposes that the drums of non-hazardous IDM be disposed in accordance with the site procedure 4-F99-ENV-OPS-FO.23.

The 64 drums of RCRA hazardous waste IDM are designated as RCRA hazardous solely because they contain F039 waste and because the RCRA risk analysis ratio is greater than one. This risk evaluates the human exposure pathways of direct ingestion of soil, dermal absorption of constituents from soil, inhalation of suspended (airborne) soil, and ingestion of food grown in contaminated soil. None of the drums have any other associated waste codes. Because the OU 7 landfill is undergoing a RCRA equivalent closure, and because this waste came directly from characterizing the landfill, we propose returning this waste to the landfill before the cap is put in place.

By returning the RCRA hazardous waste IDM to the landfill, the RCRA and CERCLA constituents in the IDM will be controlled to the same extent as the waste already there. Once the landfill is capped the soil pathway will no longer exist and the disposition is protective of human health and the environment. In addition, this solution is cost effective and provides waste minimization by avoiding the introduction of different constituents to a new disposal site.

Attachment 3 cont.

M. Hestmark & J. Schieffelin
95-DOE-08198

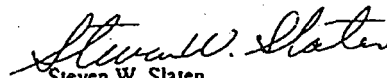
2

APR 28 1995

Enclosed is a summary of the drummed IDM proposed to be put back in the landfill and each drum's characterization information.

Since this issue has an impact on the content of the IM/IRA decision document, the Department of Energy would appreciate a response two weeks from receipt of this letter.

Sincerely,


Steven W. Slaten
IAG Project Coordinator
Environmental Restoration

Enclosure

cc w/o Enclosure:

J. Ahlquist, EM-452, HQ
C. Gesalman, EM-453, HQ
H. Belencan, EM-453, HQ
L. Ekman, EM-453, HQ
K. Klein, OOM, RFFO
J. Roberson, AMER, RFFO
F. Lockhart, ER, RFFO
J. Wienand, ER, RFFO
V. Witherill, ER, RFFO
B. Thatcher, ER, RFFO
P. Witherill, ER, RFFO
B. Williamson, ER, RFFO
G. Doyle, WMD, RFFO
S. Stiger, EG&G
E. Mast, EG&G
L. Peterson-Wright, EG&G
Admin Records

Attachment 3 cont.

STATE OF COLORADO

Roy Romer, Governor
Patti Shwyder, Acting Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado.

HAZARDOUS MATERIALS AND WASTE MANAGEMENT DIVISION

4300 Cherry Creek Dr. S. 722 S. 6th Street, Room 232
Denver, Colorado 80222-1530 Grand Junction, Colorado 81501-2768
Phone (303) 692-3300 Phone (303) 248-7164
Fax (303) 759-5355 Fax (303) 248-7198



Colorado Department
of Public Health
and Environment

October 3, 1995

Steve Slaten
LAG Project Coordinator-ER
Department of Energy
Rocky Flats Office
P.O. Box 928
Golden CO 80402-0928

RE: Field Investigation-Derived Materials (IDM) at Operable Unit 7

Dear Mr. Slaten:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division and the Environmental Protection Agency have reviewed DOE's request to return Field Investigation-Derived Materials generated during the OU 7 Phase I RFI/RI to the present landfill. This proposal is approved and should be incorporated into the final Interim Measure/Interim Remedial Action (IM/IRA) for OU 7.

If you have any questions regarding the approval of this proposal, please contact Carl Spreng at 692-3358.

Sincerely,

Joe Schieffelin
Rocky Flats Unit Leader
Hazardous Waste Control Program

cc: Kurt Muenchow, DOE
Steve Hahn, Kaiser-Hill
Brenda Peterson-Wright, RMRS
Bill Fraser, EPA
Laura Perrault, AGO
Steve Tarlton, RFPU

Attachment 4

EXCESS CHEMICAL SANITARY LANDFILL DISPOSITION FORM

Chemical Tracking/Identification Number _____

This form is to be completed by the person(s) who characterized the excess chemical under the guidance of the RFETS excess chemical management program.

This excess chemical has been reviewed and dispositioned as follows.

The excess chemical is not a:

(check all boxes that apply)

- ☐ radioactive waste. (RFETS-HSP 18.10)
- ☐ RCRA-regulated hazardous waste. (6 CCR 1007-2, Section 1.2.29)
- ☐ TSCA-regulated waste. (40CFR Part 761)
- ☐ listed hazardous substance. (40CFR Part 302)
- ☐ free liquid.
- ☐ material that can be recycled.
- ☐ medical/infectious waste. (CRS, Title 25, Article 15, Section 25-15-401)
- ☐ asbestos contaminated waste. (5CCR 1001-10, Regulation Number 8)
- ☐ gas or compound contained in a pressure vessel or cylinder.
- ☐ petroleum or petroleum-based product.
- ☐ chemical with a NFPA rating of two or higher.

☐ This chemical has been characterized and found acceptable for disposal into the Sanitary Landfill. (all boxes checked)

☐ This chemical has been characterized and found unacceptable for disposal into the Sanitary Landfill. (one or more boxes unchecked)

The signature below affirms that, to the best of my knowledge and belief, this excess chemical has been properly identified. This determination is based on personal knowledge of the material, laboratory analysis for RCRA hazardous constituents, or credible information obtained from third parties. I understand that under RCRA regulations, penalties for knowingly and willfully submitting false statements regarding RCRA hazardous chemicals may include a fine and imprisonment.

Dispositioned by (Sign Name) _____

Print Name _____

Extension _____

Date _____

If upon completion of this form, the excess chemical is found acceptable for disposal as a sanitary waste, complete a Waste Process Request Form (WPRF) (RF-46367) or Material Transfer and Disposal Form (RF-47655), obtain a completed Property/Waste Release Evaluation Form from Radiological Engineering, and submit all documentation to Landfill Operations (Bldg. T1308) for final approval. Additional documentation shall include the completed Excess Chemical Disposition Form (RF-47792), Material Safety Data Sheet, Laboratory Analysis (if available or required), and other relevant documentation for this excess chemical.

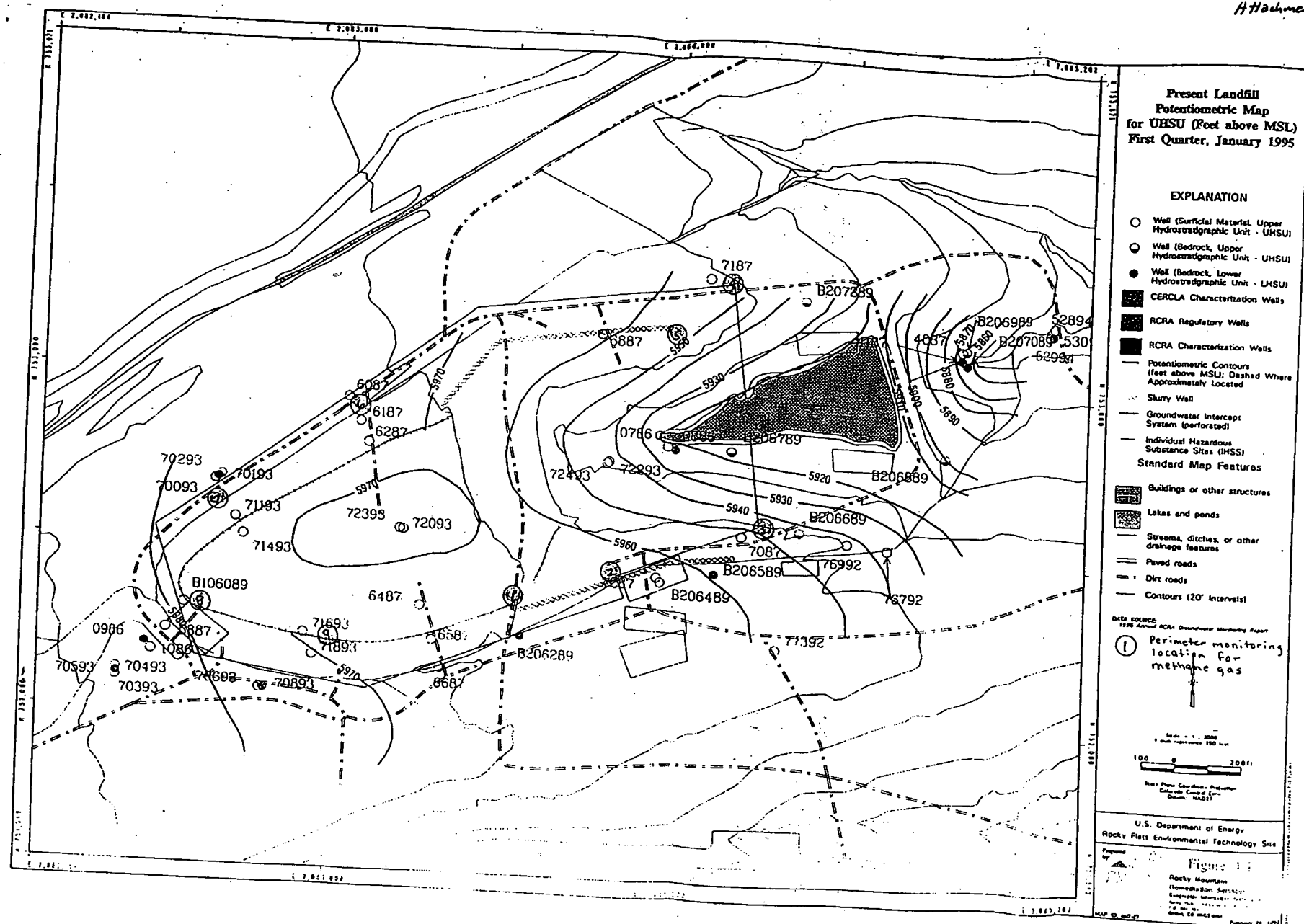
Landfill Operations Signature Approval _____

Landfill Operations Tracking Number _____

Date _____

Upon approval and receipt of this signed and completed form from Landfill Operations follow the Transportation Safety Manual requirements for transfer of waste excess chemicals to the Sanitary Landfill. All above referenced documentation must accompany the waste sent to the landfill so it can be included into the landfill's operating record.

ECSLDF-001



Sanitary Landfill Explosive Gas Survey Sheet

Attachment 6

Operational Plan for the RFETS Sanitary Landfill
Rocky Flats Environmental Technology Site

Rocky Mountain Remediation Services
6/18/97

| | | | | | | | | | |
|---|--|--|--|---|--|--|--|--|--|
| General Information RFETS Sanitary Landfill SW-277 Station Operator: Rocky Flats Environmental Technology Site Jefferson County Golden, Colorado | | | | General Information RFETS Sanitary Landfill Building Area: 400 Overall Landfill Volume: 500 RFETS Environmental Division's Project: 000001 | | | | | |
| Explosive Gas Survey Information Name: _____ Name: _____ Calendar Quarter: _____ Year: _____ Date of Inspection: _____ Refer to Landfill Explosive Gas Monitoring Map for sample locations R1-R9. | | | | Explosive Gas Survey Information Waste Disposal/Storage and Landfilling Waste Project Solid Material Management Waste Management Services | | | | | |
| Pass Fail Refer to the Pass/Fail criteria listed below. ** | | | | Comment | | | | | |
| Required Perimeter Sample Location Number R1 | | | | | | | | | |
| Required Perimeter Sample Location Number R2 | | | | | | | | | |
| Required Perimeter Sample Location Number R3 | | | | | | | | | |
| Required Perimeter Sample Location Number R4 | | | | | | | | | |
| Required Perimeter Sample Location Number R5 | | | | | | | | | |
| Required Perimeter Sample Location Number R6 | | | | | | | | | |
| Required Perimeter Sample Location Number R7 | | | | | | | | | |
| Required Perimeter Sample Location Number R8 | | | | | | | | | |
| Required Perimeter Sample Location Number R9 | | | | | | | | | |
| Additional Sample Locations A1 | | | | Location: | | | | | |
| Additional Sample Locations A2 | | | | Location: | | | | | |
| Additional Sample Locations A3 | | | | Location: | | | | | |
| Additional Sample Locations A4 | | | | Location: | | | | | |
| Additional Sample Locations A5 | | | | Location: | | | | | |
| Additional Sample Locations A6 | | | | Location: | | | | | |
| ** Locations marked as "Pass" have no detectable levels of methane >5.0% of the lower explosive limit by volume in air for methane. | | | | | | | | | |
| * If explosive gas is observed at any of the lower explosive limit (LEL) levels, the area must be evacuated immediately. | | | | | | | | | |
| Equipment Information Was gas detector calibrated before use? (circle response) YES NO Gas Detector Identification Number: _____ | | | | | | | | Mine Safety Appliance GASPORT™ combustible gas detector or equivalent. | |

Solid Waste Landfill and Facility Inspection Checklist

Attachment 7

| | | | |
|--|--|---|--|
| Site Information Rocky Flats Environmental Technology Site Solid Waste Landfill Facility Operated by: RMRSS (RMRSS is the Department of Energy contractor for the Rocky Flats Site | | Facility Information Rocky Flats Sanitary Landfill Subcontract #19 Operated and Maintained by: Rocky Mountain Remediation Services (RMRSS) | |
| Inspected (Site Facility Disposal) Name: _____ Name: _____ Month: _____ Year: 1997 | | Project Manager: _____ Date: _____ Site: _____ | |
| Day of Inspection Day/Date: _____ | | Comments | |
| Landfill Open ? - Yes (Y) - No (N) - Limited (L) | | | |
| Daily/Weekly Inspection Items | | | |
| Check the following items at the end of each work day. | | | |
| Landfill organized and ready for waste acceptance. | | | |
| Landfill operations, visits, tours, and audits, on Plan-of-the-day | | | |
| Adequate personnel available at the landfill site | | | |
| Personnel and visitors using appropriate PPE | | | |
| Unauthorized access controlled | | | |
| Waste received for disposal approved by RMRS Departments | | | |
| Daily waste inspection and screening completed | | | |
| Management contacted regarding nonconformances | | | |
| Daily radiological monitoring completed for waste (if required) | | | |
| Documentation/Records collected for waste received at landfill | | | |
| Management notified of incidents/maintenance requests/issues | | | |
| Site access and traffic controls adequate | | | |
| Access roads adequate for operations | | | |
| Communications adequate for Buffer Zone and Landfill | | | |
| Fire protection/fire extinguishers adequate and checked | | | |
| Landfill gates locked when unattended and at end of working day | | | |
| Equipment in good working condition | | | |
| Waste Compaction adequate | | | |
| Daily (6")/Intermediate (12") cover adequate and available | | | |
| Working face adequate for waste volume | | | |
| Housekeeping and control of windblown debris adequate | | | |
| Nuisance conditions minimized (rodents/insects/birds/odors) | | | |
| Wind Speed Monitored (closed or limited operations >20 mph) | | | |
| Equipment driving at slow speeds to control dust | | | |
| Weekly Inspection Items | | | |
| Check these items at the end of the work week. | | | |
| Employee facilities adequate and clean (San-O-Let) | | | |
| GAC being properly managed by Environmental Restoration Dept. | | | |
| Records and Documents filed into Landfill Operating Record | | | |
| Security/Debris fences and signs in place and adequate | | | |
| Signs appropriately posted in and around the landfill site | | | |
| Equipment and Site maintenance and PMO up to date | | | |
| Run-on/Run-off/Ponding/Erosion controls adequate | | | |
| Cover soil stockpile properly managed | | | |
| Survey stakes in place and grids for waste followed | | | |
| Monthly Inspection Items | | | |
| Check these items at the end of each month. | | | |
| Fire protection/fire extinguishers adequate and checked | | | |
| Employee Training up to date and adequate | | | |
| Monthly Volumes calculated and charted | | | |
| Cover soil adequate for 30 days | | | |
| Quarterly Inspection Items | | | |
| Check these items at the end of each calendar quarter. | | | |
| Explosive Gas Monitoring (perimeter of site) | | | |
| Methane Monitoring completed at GWM Wells and Methane Vents | | | |
| Groundwater Monitoring completed for identified GWM Wells | | | |
| | | For Month: _____ | |
| | | For Quarter: _____ | |
| | | Steve Singer X3387 | |
| | | Steve Singer X3387 | |